

## Demographic information

- Name-Mr ABC
- Age-10months
- Sex –male
- Address-malalli,kundgol taluk
- Religion- hindu
- Informant – Ms xyz( mother )
- Age-24yrs
- Education-3<sup>rd</sup> standard
- Date of admission-23/02/2020
- Date of examination-27/02/2020

The following conditions are not considered diarrhoea:

- Frequent passage of formed stools (irritable bowel syndrome)
- Passage of pasty stools in a breastfed infant
- Passage of watery stools by a newborn after 3–4 days of birth
- Passage of stools during or immediately after feeding in a newborn (due to the initiation of gastrocolic reflex)

| Age of Onset     | Causes of Diarrhoea                                                         |
|------------------|-----------------------------------------------------------------------------|
| 6 months–2 years | Cow's milk protein intolerance<br>Lactose intolerance                       |
| 2–5 years        | Celiac disease                                                              |
| >5 years         | Inflammatory bowel disease                                                  |
| Older children   | Irritable bowel syndrome<br>Giardiasis<br>Koch's abdomen                    |
| All ages         | Gastroenteritis<br>Antibiotic induced diarrhoea<br>Food poisoning<br>Sepsis |

### Sex

Toddler's diarrhoea is chronic non-specific diarrhoea due to maturational delay in intestinal motility. It is more common in boys.

### Place of Residence

- Cholera should be suspected in a person who resides in an epidemic area.
- Food poisoning is common in places where there are poor storage facilities.
- Infections causing diarrhoea are common in areas affected by natural calamities such as flood.

## Chief complaints

- Fever for 5days
- Loose stools for 4days

## History of present illness

- Child was apparently alright 5 days back the the child developed fever, continuous type, Moderate degree, not associated with rigors or any rashes, No diurnal variation and relived on medication
- Mother also complains of passage of loose stools by The baby since 4 days which was sudden In onset, watery in consistency, Non foul smelling, initially 5-7 episode per day later increased to 8-10 episode per day , yellowish in colour, non blood tinged, scanty in amount no passage of worms in stool
- Mother gives history excessive thirst in baby and sunken eyeball which relieved after coming to hospital

TABLE 7.2 Characteristics of Stools in Specific Clinical Conditions

| Disease                    | Characteristic Features of Stools                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------------------------|
| Lactose intolerance        | Soundy, borborygmi<br>Soupy consistency<br>Sour taste (acidic pH)<br>Sore bottom (due to acidic stools)       |
| Fat malabsorption          | Frequent<br>Frothy<br>Foul smelling<br>Floats in water<br>Fixes to the pan so that flushing will be difficult |
| Inflammatory bowel disease | Recurrent blood and mucous                                                                                    |
| Irritable bowel syndrome   | Pellet- or ribbon-like stools                                                                                 |
| Starvation diarrhoea       | Small, greenish, no faecal matter                                                                             |
| Dysentery                  | Blood-stained stools                                                                                          |
| Cholera                    | Rice-water stools                                                                                             |

- No history of vomiting
- No history of any precipitating food intake = food poison
- No history of distention of abdomen
- No history of crying during micturition - UTI
- No history of edema, baggy skin, Decreased activity - PEM
- No history of any drug intake (antibiotic induced)
- No history of decreased urine output (severe dehydration)
- No history of weakness, convulsions (electrolyte imbalance)

**TABLE 7.3** Main Symptoms of Clinical Conditions in which Diarrhoea Is also Present

| Presenting Complaint             | Disease/Condition             |
|----------------------------------|-------------------------------|
| Wheeze                           | Food allergy, cystic fibrosis |
| Arthralgia                       | Inflammatory bowel disease    |
| Flushing                         | Carcinoid syndrome            |
| Jaundice                         | Bile acid diarrhoea           |
| Recurrent respiratory infections | Immunodeficiency              |
| Ataxia                           | Abetalipoproteinaemia         |

| Drug           | Side effects       |
|----------------|--------------------|
| Ampicillin     | Loose stools       |
| Furazolidone   | Vomiting           |
| Antiemetics    | Drowsiness         |
| Antispasmodics | Retention of urine |

## **Past history**

- No similar complaints in the past
- No history of previous surgery

# **Birth history**

## **Antenatal history**

- Booked case uneventful
- Anomaly scan was done
- Iron folic acid tablet taken
- No history of fever with rashes
- No history of antepartum haemorrhage
- No exposure to radiation

## **Natal history**

- Full term vaginal delivery At 9 months 16 days
- Birth weight-2.4kg Cried immediately after birth
- Urine and meconium passed after 2 hours of birth
- No history of admission to NICU
- Breast feeding started within an hour after birth

## **Postnatal history**

- No history of neonatal Jaundice
- Exclusively breastfed for 6months and continued for 1year
- Supplementary food was given after 6 months
- No history of any infection

# Developmental history

## Gross

- Neck control at -3 month
- Roll over- 6month
- Sitting with support-7 month
- Standing with support -9 month

## Fine motor

- Bidextrous grasp -4 month
- Unidextrose grasp -6month
- Mature pincer grasp-9 month

## Social

- Recognised mother-3 month
- Waves bye bye -9month

## Language

- Speak monosylabals-6 month

**Developmental milestones achieved regularly**

| Table 3.1: Key gross motor developmental milestones |                                                      |
|-----------------------------------------------------|------------------------------------------------------|
| Age                                                 | Milestone                                            |
| 3 mo                                                | Neck holding                                         |
| 5 mo                                                | Rolls over                                           |
| 6 mo                                                | Sits in tripod fashion (sitting with own support)    |
| 8 mo                                                | Sitting without support                              |
| 9 mo                                                | Stands holding on (with support)                     |
| 12 mo                                               | Creeps well; walks but falls; stands without support |
| 15 mo                                               | Walks alone; creeps upstairs                         |
| 18 mo                                               | Runs; explores drawers                               |
| 2 yr                                                | Walks up and downstairs (2 feet/step); jumps         |
| 3 yr                                                | Rides tricycle; alternate feet going upstairs        |
| 4 yr                                                | Hops on one foot; alternate feet going downstairs    |

| Table 3.3: Key social and adaptive milestones |                                                         |
|-----------------------------------------------|---------------------------------------------------------|
| Age                                           | Milestone                                               |
| 2 mo                                          | Social smile (smile after being talked to)              |
| 3 mo                                          | Recognizes mother; anticipates feeds                    |
| 6 mo                                          | Recognizes strangers, stranger anxiety                  |
| 9 mo                                          | Waves "bye bye"                                         |
| 12 mo                                         | Comes when called; plays simple ball game               |
| 15 mo                                         | Jargon                                                  |
| 18 mo                                         | Copies parents in task (e.g. sweeping)                  |
| 2 yr                                          | Asks for food, drink, toilet; pulls people to show toys |
| 3 yr                                          | Shares toys; knows full name and gender                 |
| 4 yr                                          | Plays cooperatively in a group; goes to toilet alone    |
| 5 yr                                          | Helps in household tasks, dresses and undresses         |

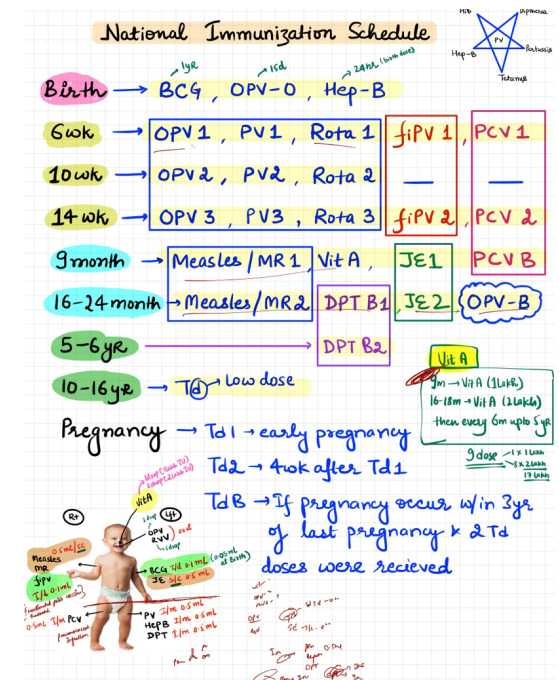
| Table 3.2: Key fine motor developmental milestones |                                                                               |
|----------------------------------------------------|-------------------------------------------------------------------------------|
| Age                                                | Milestone                                                                     |
| 4 mo                                               | Bidextrous reach (reaching out for objects with both hands)                   |
| 6 mo                                               | Unidextrous reach (reaching out for objects with one hand); transfers objects |
| 9 mo                                               | Immature pincer grasp; probes with forefinger                                 |
| 12 mo                                              | Pincer grasp mature                                                           |
| 15 mo                                              | Imitates scribbling; tower of 2 blocks                                        |
| 18 mo                                              | Scribbles; tower of 3 blocks                                                  |
| 2 yr                                               | Tower of 6 blocks; vertical and circular stroke                               |
| 3 yr                                               | Tower of 9 blocks; copies circle                                              |
| 4 yr                                               | Copies cross; bridge with blocks                                              |
| 5 yr                                               | Copies triangle; gate with blocks                                             |

| Table 3.4: Key language milestones |                                                    |
|------------------------------------|----------------------------------------------------|
| Age                                | Milestone                                          |
| 1 mo                               | Alerts to sound                                    |
| 3 mo                               | Coo (musical vowel sounds)                         |
| 4 mo                               | Laugh loud                                         |
| 6 mo                               | Monosyllables (ba, da, pa), ah-goo sounds          |
| 9 mo                               | Bisyllables (mama, baba, dada)                     |
| 12 mo                              | 1-2 words with meaning                             |
| 18 mo                              | 8-10 word vocabulary                               |
| 2 yr                               | 2-3 word sentences, uses pronouns "I", "me", "you" |
| 3 yr                               | Asks questions; knows full name and gender         |
| 4 yr                               | Says song or poem; tells stories                   |
| 5 yr                               | Asks meaning of words                              |

| Table 3.5: Upper limit of age for attainment of milestone |       |
|-----------------------------------------------------------|-------|
| Milestone                                                 | Age   |
| Visual fixation or following                              | 2 mo  |
| Vocalization                                              | 6 mo  |
| Sitting without support                                   | 10 mo |
| Standing with assistance                                  | 12 mo |
| Hands and knees crawling                                  | 14 mo |
| Standing alone                                            | 17 mo |
| Walking alone                                             | 18 mo |
| Single words                                              | 18 mo |
| Imaginative play                                          | 3 yr  |
| Loss of comprehension, single words or phrases at any age |       |

# Immunization history

- Immunized till date
- Last vaccine -MR,JE, Vitamin A at 9month
- Rota virus vaccine not taken



## **Nutritional history**

- Morning- 1 banana -110k cal- 1.g Protein
- 4 Biscuits - 80 kcal – 1g protein
- Afternoon – 1 glass Milk-160 k cal -8 g
- Ragi malt. -110k cal -2g
- Evening -4 biscuits-80 k cal 1g protien
- Night – Smashed rice and vegetables-110k cal -2g protein

**Total- 650k cal ,15g protein**

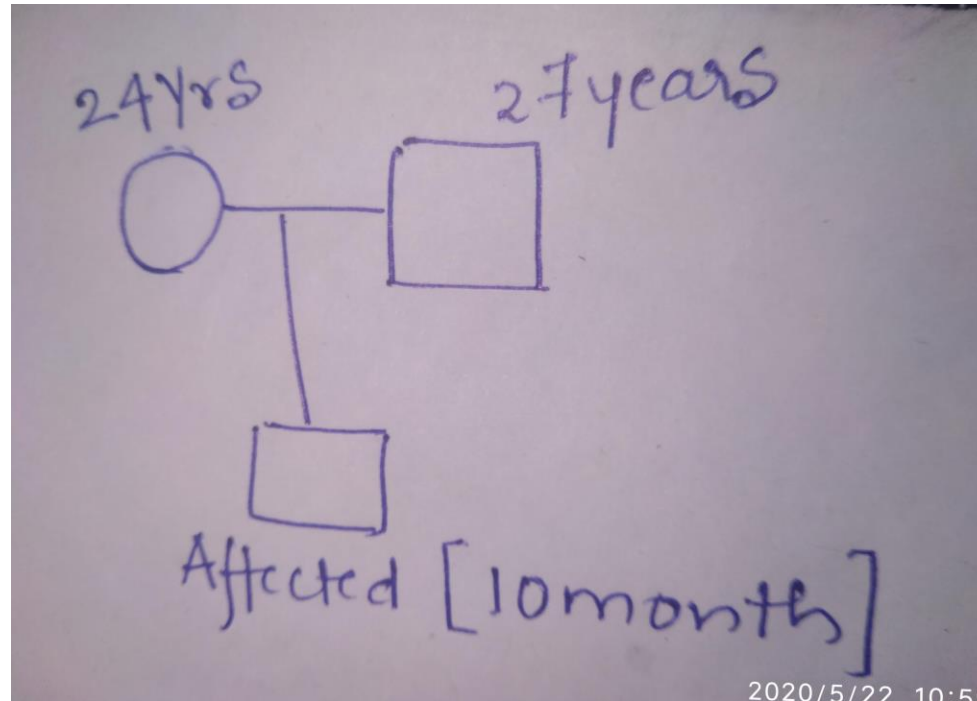
Required – 800 cal ,16g

Deficient- 250 k cal ,1g

Percentage – 30%in calories, 6.25% in protien

## Family history

- Non consanguineous marriage
- Married life -2 years
- No similar Complaints in other family members



## **Socioeconomic status**

- Father is a farmer And studied till SSLC
- Belongs to class 4 socioeconomic status according to kuppuswamy classification
- Lives in a Kucha house with overcrowding and with good ventilation
- No open defecation , drink filtered water water supplies from municipal corporation they store in vessel use dipping type

- **Summary**

Here is a 10 month old male child who is born to a non consanguineous married couple belonging to class 4 socioeconomic status ,who consumes a diet Which is 30% deficient in calories and 6.25% deficient in protien ,who is immunized upto date with normal developmenal milestones and with no similar complaints in past. Now comes with chief complaint of , fever since 5 days ,loose stools since 4 days

# EXAMINATION

## General survey

Here is a 10month old male child which is alert,active and playful

## Vital signs

Temperature- 98.5° farenhiet measured in axilla

Pulse -114 beats per minute good volume, no radio radial or radio femoral delay – normal

Respiratory rate-38cycles per minute- normal

Blood pressure-70/50mm Hg

| Age               | Normal Respiratory Rate (Breaths/min) | Tachypnoea (Breaths/min) |
|-------------------|---------------------------------------|--------------------------|
| Up to 2 months    | 30–50                                 | >60                      |
| 2–12 months       | 20–40                                 | >50                      |
| 12 months–5 years | 20–30                                 | >40                      |
| 5–10 years        | 15–20                                 | >30                      |
| >10 years         | 15–18                                 | >30                      |

| Age         | Beats/min |
|-------------|-----------|
| <6 months   | 120–160   |
| 6–12 months | 110–120   |
| 1–5 years   | 95–110    |
| 6–12 years  | 80–110    |
| >12 years   | 60–100    |

| Temperature  | Degree Centigrade | Degree Fahrenheit |
|--------------|-------------------|-------------------|
| Normal       | 36.6–37.2         | 98–99             |
| Subnormal    | <36.6             | <98               |
| Febrile      | >37.2             | >99               |
| Hyperpyrexia | >41.6             | >107              |
| Hypothermia  | <35               | <95               |

## Head to toe examination

### Sign of dehydration

Tears present

Tongue moist

Not thirsty

Skin pinch –retracts immediately

- Hair –normal
- Anterior fontanel- appear to be sunken
- Posterior fontanel – closed
- Eye- pallor is present
- Icterus is not present
- No features of vitamin A deficiency
- Nose- normal
- Teeth –normal
- Oral cavity- Good Hygiene no features of anaemia

### Signs of nutritional deficiency

- Acrodermatitis enteropathica—zinc deficiency
- Dermatitis (pellagra—niacin deficiency)
- Signs of vitamin D deficiency (in malabsorption syndrome)—bossing, open anterior fontanel, alopecia
- Vitamin A deficiency (in malabsorp-

TABLE 7.11 Assessment of Severity of Dehydration

| Features                 | No Dehydration               | Some Dehydration                                                                                                          | Severe Dehydration                                                                                                          |
|--------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Sensorium <sup>a</sup>   | Alert                        | Irritable                                                                                                                 | Lethargic/unconscious                                                                                                       |
| Thirst <sup>b</sup>      | Not thirsty; drinks normally | Thirsty; drinks eagerly                                                                                                   | Drinks poorly or not able to drink                                                                                          |
| Skin turgor <sup>c</sup> | Normal                       | Goes back slowly                                                                                                          | Goes back very slowly                                                                                                       |
| Eyes <sup>d</sup>        | Normal; tears present        | Sunken; tears absent                                                                                                      | Very sunken; tears absent                                                                                                   |
| Oral mucosa <sup>a</sup> | Moist                        | Dry                                                                                                                       | Very dry                                                                                                                    |
| Definition               | No signs of dehydration      | If two or more of the above signs, including at least one key sign, are present, then the patient is in some dehydration. | If two or more of the above signs, including at least one key sign, are present, then the patient is in severe dehydration. |
| Weight loss              | <3%                          | 3%–9%                                                                                                                     | >9%                                                                                                                         |
| Heart rate               | Normal                       | Normal; may be increased                                                                                                  | Tachycardia; bradycardia in most severe cases                                                                               |
| Pulse                    | Normal                       | Normal to decreased volume                                                                                                | Weak, thready or impalpable                                                                                                 |
| Extremities              | Warm                         | Cold                                                                                                                      | Cold, mottled and cyanotic                                                                                                  |
| Treatment plan           | Plan A                       | Plan B                                                                                                                    | Plan C                                                                                                                      |

<sup>a</sup>Signs used to assess the severity of diarrhoea. Of these, 1–3 are key signs.

<sup>b</sup>Skin turgor has less importance in infants and malnourished children.

<sup>c</sup>Mouth can be dry in a mouth breather or can be wet if the child has recently vomited or has consumed something orally.

- Nails – normal
- Skin – On pinching the skin, it goes back immediately
  - - Mongolian spots present on back
- Chest ,Spine and back normal
- Pelvis- There is loss of pad of fat in groin
- No cyanosis, clubbing, lymphadenopathy, edema

## Anthropometry

|                       | Observed | Expected | Inference |
|-----------------------|----------|----------|-----------|
| Weight                | 6.7 kg   | 10 .7kg  | <-3 SD    |
| Length                | 71 cm    | 76cm     | <-1 SD    |
| Head circumference    | 44 cm    | 45cm     | Normal    |
| Mid arm circumference | 12cm     | >13.5cm  | <-2 SD    |
|                       |          |          |           |

- **Systemic examination**

- **Per abdomen examination**

- **INSPECTION**

- Abdomen is distended Uniformly
- Umbilicus central and everted
- Corresponding quadrants move equally with respiration
- No dilated veins Present ,no scars, no pulsation
- Hernial orifices normal
- External genitalia normal

## PALPATION

- No local rise of temperature, no tenderness
- On Deep palpation
- Abdomen is soft, no organomegaly appreciated

### Palpation

- Soft/tense
- Local tenderness
- Guarding/rigidity
- Palpable masses

## PERCUSSION

- Tympanic note heard

## AUSCULTATION

- Normal bowel sounds heard

### Auscultation

Normal frequency of bowel sound is 3–5 sounds per minute. It should be checked whether they are decreased or increased.

- **Other systems**

- **CVS-**

- No raised JVP, S1 S2 heard no murmur

- **RS –**

- . Normal vesicular breath sounds heard Bilateral equal air entry no added sounds

- **CNS-** No altered sensorium , sensory and motor system examination is normal

- **DIAGNOSIS**

Case of Acute diarrhoeal disease of infective pathology With No dehydration and With no impending complications

**TABLE 7.6** Differences between Small-Bowel and Large-Bowel Diarrhoea

| Features                                     | Small-Bowel Diarrhoea                                                          | Large-Bowel Diarrhoea                          |
|----------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------|
| Volume of stools                             | Large                                                                          | Small                                          |
| Colour                                       | Light                                                                          | Dark                                           |
| Frequency                                    | Not very frequent                                                              | Frequent                                       |
| Odour of stools                              | Offensive                                                                      | Odourless                                      |
| Nature of stools                             | Bulky, watery, steatorrhoea or frothy explosive stools                         | Loose stools with blood and mucus or jellylike |
| Bloating of abdomen                          | Present                                                                        | Absent                                         |
| Effect of defecation on abdominal discomfort | Relieved                                                                       | Not relieved                                   |
| Borbogymi and flatulence                     | Present                                                                        | Absent                                         |
| Tenesmus                                     | Absent                                                                         | Present                                        |
| Constitutional symptoms                      | Not common                                                                     | Fever and prostration                          |
| Vomiting                                     | More common                                                                    | Rare                                           |
| Dehydration                                  | Present                                                                        | Usually absent                                 |
| Perianal excoriation                         | Present                                                                        | Rare                                           |
| Causative agents                             | <i>Vibrio cholerae</i> , <i>E. coli</i> , rotavirus, Norwalk virus, giardiasis | <i>Shigella</i> , <i>Entamoeba histolytica</i> |
| Complications                                | Dehydration                                                                    | Haemolytic uremic syndrome<br>Toxemia          |

**TABLE 7.7** Differences between Osmotic Diarrhoea and Secretory Diarrhoea

| Features                                             | Osmotic Diarrhoea                                                          | Secretory Diarrhoea                                                             |
|------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Effect of fasting on stool frequency and consistency | Decreased symptoms                                                         | No change                                                                       |
| Appearance                                           | Not ill looking                                                            | Ill looking                                                                     |
| Stools                                               | Large volume, semisolid                                                    | Large volume, watery                                                            |
| Flatulence                                           | ++                                                                         | –                                                                               |
| Perianal excoriation                                 | Present                                                                    | Absent                                                                          |
| Withdraw the offending agent                         | Diarrhoea stops                                                            | Does not respond                                                                |
| Dehydration                                          | +                                                                          | ++                                                                              |
| Volume of stools                                     | <200 mL/24 hour                                                            | >200 mL/24 hour                                                                 |
| Stools consistency                                   | Soupy—lactose intolerance                                                  | Watery                                                                          |
| Volume of stools                                     | Proportional to amount of intake of offending foods                        | More                                                                            |
| Investigations                                       |                                                                            |                                                                                 |
| Stool osmolality                                     | 400 mOsmol/kg<br>↑ osmolality<br>> 2 × (Na <sup>+</sup> + K <sup>+</sup> ) | 290 mOsmol/kg<br>Normal osmolality<br>= 2 × (Na <sup>+</sup> + K <sup>+</sup> ) |
| Stool sodium                                         | Less                                                                       | More                                                                            |
| Stool Na <sup>+</sup>                                | <70 mEq/L (30 mmol/L)                                                      | >70 mEq/L (105 mmol/L)                                                          |
| Stool K <sup>+</sup>                                 | 30 mmol/L                                                                  | 40 mmol/L                                                                       |
| Stool pH                                             | <5                                                                         | >6                                                                              |
| Evidence of malabsorption                            | Present                                                                    | Absent                                                                          |
| Stool for reducing substances                        | Positive                                                                   | Negative                                                                        |
| Solute gap                                           | 280 mmol/L                                                                 | 0 mmol/L                                                                        |
| Osmotic gap                                          | >100 mOsmol/L                                                              | <100 mOsmol/L                                                                   |